

REMARKS

The present amendment is in response to the Office Action mailed July 8, 2004, in which Claims 1, 2, 4, 5, 8-17 were rejected. Applicant has thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action and, when coupled with the above amendments, are believed to render the claims at issue patentable.

Claims 1 and 15-17 are amended and claims 3 and 6-7 were previously canceled. Applicant respectfully submits that no new matter has been added and that the originally filed specification, drawings, and claims support the amendments.

Drawing Objections

Applicant notes that the Office Action Summary sheet indicates that the Examiner still objects to the drawings. Since no explanation of the drawing objections are listed in the body of the Office Action, Applicant assumes that the Examiner is referring to the objections listed in the January 15, 2002 Office Action. Applicant responded to those drawing objections in the Office Action response filed on April 15, 2002 wherein the specification was amended to correspond to the drawings. Therefore, Applicant respectfully requests withdrawal of the drawing objections.

Claim Rejections Under 35 U.S.C. § 102(b)

With respect to the Paragraph 2 of the Office Action, Claims 5, 8, 9 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimada et al. (U.S. Patent 5,838,064).

Applicant respectfully traverses this rejection.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single

prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). (MPEP §2131)

Shimada discloses that the upper surface of the LSI chip 40 is attached (e.g., glued) to the lower face of the plate 12 of the supporting member 10 by an adhesive 44, referring to FIG. 3 and lines 61-64 column 5. However, the present application discloses a stabilization plate, being located on a bottom of the heatsink and surrounding a die of a chip and a thermal pad coupled to the heatsink, for making the thermal pad closely compact to the die of the chip when the heatsink is located on the chip.

Shimada never suggests or teaches to utilize the plate 12 to surround the die and the thermal pad for making the thermal pad closely compact to the die. Especially, the plate 12 configured between the adhesive 44 and the heatsink 43 may reduce the heat dissipation efficiency of the cooling means.

The present application utilizes the stabilization plate surrounding the die and the thermal pad, and the thermal pad is coupled to the heatsink. The stabilization plate is not between the heatsink and the thermal pad. Accordingly, the stabilization plate has no influence on the heat dissipation efficiency of the cooling assembly. Therefore, the structure of the present application and that of the prior art are different. Furthermore, the function of the plate 12 of the prior art and the function of the stabilization plate are also different.

In addition, the present application discloses that the heatsink comprises a right portion, on the right side of the center of the die, and a left portion, on the left side of the center of the die,

respectively having a first plurality of cooling fins and a second plurality of cooling fins, and the second cooling fins are less than the first cooling fins (claim 5). Shimada never suggests or teaches that the right cooling fins of the heatsink are less than the left cooling fins of the heatsink. Instead, as shown in Figs 3, 4D and 5, the right cooling fins and the left cooling fins of the heatsink are equal.

Accordingly, in view of the invention as a whole, applicant respectfully submits that Claims 1 and 17 define over the cited references and respectfully requests withdrawal of the rejection under 35 U.S.C. § 102(b). Claims 8-9 which depend on Claim 5 also define over the art cited by the Office Action. Having overcome the rejections in the Office Action, withdrawal of the rejections and expedited passage of the application to issue are respectfully requested.

Claim Rejections Under 35 U.S.C. § 103(a)

With respect to the Paragraph 3 of the Office Action, Claims 1, 2, 10, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimada et al. (U.S. Patent 5,838,064) in view of Glenn et al. (U.S. Patent 5,596,485).

Applicant respectfully traverses this rejection. Both Shimada and Glenn never suggest or teach the stabilization plate surrounding the die and the thermal pad. Both of the plate 12 of Shimada and the heat spreader of Glenn are configured above the die, and therefore the heat generated by the die has to conduct to the heatsink by way of the stabilization plate. As the foregoing description, the structures of the present application and the prior art are different. Further, the functions thereof are also different.

In addition, Shimada's supporting plate (12) is used for supporting the heatsink (43). The supporting plate (12) is made of cooper-tungsten alloy (column 4, lines 44-46), which is a hard

structure, not a soft or an elastic structure. However, the stabilization plate of the present application is made of a soft and elastic material, which is used as a buffer for connecting the die and the heatsink closely not for supporting the heatsink (claims 15, 16).

Furthermore, the force caused by an inclination of the heatsink can be absorbed by the stabilization plate of the present application. In the prior art, the force is directly transferred to the thermal pad. Therefore, the stabilization plate of the present application can reduce the force pressed on the thermal pad and keep the transferring heat in a surface-to-surface mode. However, the plate of the prior art only transfers the force to the thermal pad and makes a deformation of the thermal pad. Therefore, the mechanical structures thereof are opposites.

Due to the different heat conduction paths of the prior art and the present application, the heat dissipation efficiencies thereof are different. The conjunctional structures and functions of the stabilization plates of the present application and the prior art are also different. Furthermore, the mechanical structures of the prior art and the present application are opposites. Therefore, even a person having ordinary skill in the art cannot achieve the present application at the time the present application was made.

Accordingly, in view of the invention as a whole, applicant respectfully submits that Claims 1, 5 and 17 define over the cited references and respectfully requests withdrawal of the rejection under 35 U.S.C. § 103(a). Claims 2-4 and 10-14 which depend on Claims 1 and 5 respectively, also define over the art cited by the Office Action. Having overcome the rejections in the Office Action, withdrawal of the rejections and expedited passage of the application to issue are respectfully requested.

The amendment was made to expedite the prosecution of this application. Applicant respectfully traverses the rejections of the amended claims and reserves the right to re-introduce them and claims of an equivalent scope in a continuation application.

CONCLUSION

Applicant believes that all pending claims are allowable and a Notice of Allowance is respectfully requested.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel at the number set out below.

Respectfully submitted,

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